

| | Hits | Search Text | DBs |
|---|------|---|---|
| 1 | 2 | (("6141660") or ("6980995")) .PN. | US-PGPUB; USPAT |
| 2 | 0 | ("95551929") .PN. | US-PGPUB; USPAT |
| 3 | 0 | "ILLUMINATING MECHANISM FOR DEFINING OBJECT LAYER".TI. | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB |
| 4 | 1 | ("20050160110") .PN. | US-PGPUB; USPAT |
| 5 | 5710 | HIERARCHICAL NEAR9 DATABASE\$1 | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB |
| 6 | 4471 | 5 and @ad < "20040116" | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB |
| 7 | 870 | (metadata near5 schema\$1) | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB |
| 8 | 46 | 6 and 7 | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB |

| | Hits | Search Text | DBs |
|----|-------------|--|---|
| 9 | 25 | 8 and (xml or (extensible adj markup adj language)) | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB |
| 10 | 4 | map\$4 with (xml or (extensible adj markup adj language)) with (hierarchical near9 database\$1) with schema\$1 | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB |
| 11 | 0 | 11 and @ad < "20040116" | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB |
| 12 | 233350 0 | "46" and @ad < "20040116" | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB |
| 13 | 46 | 8 and @ad < "20040116" | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB |
| 14 | 4 | (xml or (extensible adj markup adj language)) with (hierarchical near9 database\$1) with (meta\$1data near9 schema\$1) | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB |

| | Hits | Search Text | DBs |
|----|------|---|---|
| 15 | 0 | 14 and 15 | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB |
| 16 | 7 | (xml or (extensible adj markup adj language)) same (hierarchical near9 database\$1) same (meta\$1data near9 schema\$1) | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB |
| 17 | 2 | 17 and @ad < "20040116" | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB |
| 18 | 1 | 18 and map\$4 | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB |
| 19 | 23 | (xml or (extensible adj markup adj language)) and (hierarchical near9 database\$1) and (meta\$1data near9 schema\$1) and @ad < "20040116" and map\$4 | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB |
| 20 | 23 | 20 and name\$1 | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB |

| | Hits | Search Text | DBs |
|----|------|---|---|
| 21 | 23 | 21 and (tree\$1 or sub\$1tree\$1 or hierarch\$4) | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB |
| 22 | 23 | 22 and @ad < "20040116" | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB |

| Set | Items | Description |
|-----|--------|---|
| S1 | 59023 | S DATABASE? ? OR DBMS OR RDBMS OR OODB OR DATA() (BASE? ? OR STRUCTURE? ?) OR REPOSITOR? |
| S2 | 359144 | S HIERARCHY OR HIERARCHICAL OR HIERARCHIES OR LEVEL? ? OR TREE OR TREES OR BTREE? ? OR TIER? OR MULTILEVEL? |
| S3 | 2316 | S (S2 (3N) S1) OR IMS OR INFORMATION()MANAGEMENT()SYSTEM? ? |
| S4 | 713 | S XML OR EXTENSIBLE()MARKUP()LANGUAGE |
| S5 | 112363 | S MAP OR MAPS OR MAPPED OR MAPPING OR INDEX OR INDEXES OR INDICES OR CROSS()REFEREN? |
| S6 | 1288 | S S5 (5N) (NAME OR NAMES OR TITLE? ? OR LABEL? ?) |
| S7 | 13236 | S S2 (5N) (REPRESENT??? OR REPRESENTATION? ? OR DISPLAY??? OR SHOW? ? OR SHOWING OR PRESENT??? OR MODEL? ? OR MODELING OR DIAGRAM? ? OR VIEW??? OR GRAPH? ?) |
| S8 | 0 | S S3 AND S4 AND S6 AND S7 |
| S9 | 9 | S S5 (10N) S4 (10N) S1 |
| S10 | 0 | S S3 AND S4 AND S9 AND S7 |
| S11 | 0 | S S3 AND S4 AND (S6 OR S9) |

; show files

[File 347] JAPIO Dec 1976-2006/Aug(Updated 061130)
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| Set | Items | Description |
|-----|--------|--|
| S1 | 375027 | S DATABASE? ? OR DBMS OR RDBMS OR OODB OR DATA() (BASE? ? OR STRUCTURE? ?) OR REPOSITOR? |
| S2 | 22009 | S (HIERARCHY OR HIERARCHICAL OR HIERARCHIES OR LEVEL? ? OR TREE OR TREES OR BTREE? ? OR TIER? OR MULTILEVEL?) (3N) S1 OR IMS OR INFORMATION() MANAGEMENT() SYSTEM? ? |
| S3 | 164166 | S METADATA OR META() DATA OR TAG OR TAGS OR TAGGED OR TAGGING OR METATAG? |
| S4 | 255 | S S2 (10W) S3 |
| S5 | 2 | S S3 (3W) (DERIVE? ? OR DERIVING OR (OBTAIN?? OR OBTAINING OR OBTD OR TAKE? ? OR TOOK OR GOT OR GOTTEN OR GET) () "FROM") (3W) S2 |
| S6 | 0 | S S3 (3W) ((GENERATE? ? OR GENERATING OR GENERATION OR PRODUCE? ? OR PRODUCTION OR PRODN OR PRODUCING OR CONSTRUCT?? OR CONSTRUCTING OR BUILD? ? OR BUILT OR BUILDING OR FORMULATE? ? OR FORMULATING OR FORMULATION OR CREATE? ? OR CREATING) () "FROM") (3W) S2 |
| S7 | 20513 | S XML OR EXTENSIBLE() MARKUP() LANGUAGE |
| S8 | 2234 | S S2 (3N) (REPRESENT??? OR REPRESENTATION? ? OR DISPLAY??? OR SHOW? ? OR SHOWING OR PRESENT???) |
| S9 | 177 | S S2 (5N) (GUI OR GUIS OR UI OR USER() INTERFACE?) |
| S10 | 5121 | S S7 (7N) (REPRESENT??? OR REPRESENTATION? ? OR DISPLAY??? OR SHOW? ? OR SHOWING OR PRESENT???) |
| S11 | 689 | S S7 (7N) (GUI OR GUIS OR UI OR USER() INTERFACE?) |
| S12 | 628069 | S MAP OR MAPS OR MAPPED OR MAPPING OR INDEX OR INDEXES OR INDICES OR CROSS() REFEREN? |
| S13 | 10760 | S S12 (5N) (NAME OR NAMES OR TITLE? ? OR LABEL? ?) |
| S14 | 273 | S S12 (5N) S7 (5N) S1 |
| S15 | 1 | S S4 (30N) (S8 OR S9) (30N) (S10 OR S11) (30N) (S13 OR S14) |
| S16 | 351 | S S2 (10N) S3 |
| S17 | 1 | S S16 (30N) (S8 OR S9) (30N) (S10 OR S11) (30N) (S13 OR S14) |
| S18 | 0 | S S17 NOT S15 |
| S19 | 1652 | S S2 (3N) (MODEL? ? OR MODELING OR DIAGRAM? ?) |
| S20 | 889 | S S7 (3N) (MODEL? ? OR MODELING OR DIAGRAM? ?) |
| S21 | 0 | S S16 (30N) S19 (30N) S20 (30N) (S13 OR S14) |
| S22 | 240716 | S (REPRESENT??? OR REPRESENTATION? ? OR DISPLAY??? OR SHOW? ? OR SHOWING OR PRESENT??? OR MODEL? ? OR MODELING OR DIAGRAM? ? OR GUI OR GUIS OR UI OR USER() INTERFACE?) (5N) (HIERARCHY OR HIERARCHICAL OR HIERARCHIES OR LEVEL? ? OR TREE OR TREES OR BTREE? ? OR TIER? OR MULTILEVEL?) |
| S23 | 622 | S S22 (10N) S7 |
| S24 | 1 | S S16 (30N) S22 (30N) (S13 OR S14) |
| S25 | 0 | S S24 NOT S15 |
| S26 | 5 | S S2 (30N) S3 (30N) S22 (30N) (S13 OR S14) |
| S27 | 5 | IDPAT (sorted in duplicate/non-duplicate order) |
| S28 | 5 | IDPAT (primary/non-duplicate records only) |
| S29 | 310 | S S7 (30N) S2 |
| S30 | 3 | S S29 (30N) S13 |
| S31 | 2 | S S30 NOT (S15 OR S28) |

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[File 348] **EUROPEAN PATENTS 1978-2006/ 200648**

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**File 348: For important information about IPCR/8 and forthcoming changes to the IC= index, see HELP NEWSIPCR.*

[File 349] **PCT FULLTEXT 1979-2006/UB=20061130UT=20061123**

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**File 349: For important information about IPCR/8 and forthcoming changes to the IC= index, see HELP NEWSIPCR.*

[File 350] **Derwent WPIX 1963-2006/UD=200677**

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**File 350: DWPI has been enhanced to extend content and functionality of the database. For more info, visit <http://www.dialog.com/dwpi/>.*

15/5,K/1 (Item 1 from file: 350) [Links](#)

Derwent WPIX

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0015191482 *Drawing available*

WPI Acc no: 2005-541075/200555

XRPX Acc No: N2005-443187

Article of manufacture comprising storage medium storing program to provide metadata schema comprising representation of structure of hierarchical database/extensible markup language document, database field name and XML element name

Patent Assignee: CHARLET K J (CHAR-I); FREDERICK H D M (FRED-I); HOLTZ C M (HOLT-I);
WIEDENMANN C M (WIED-I)

Inventor: CHARLET K J; FREDERICK H D M; HOLTZ C M; WIEDENMANN C M

Patent Family (1 patents, 1 countries)

| Patent Number | Kind | Date | Application Number | Kind | Date | Update | Type |
|----------------|------|----------|--------------------|------|----------|--------|------|
| US 20050160108 | A1 | 20050721 | US 2004759601 | A | 20040116 | 200555 | B |

Priority Applications (no., kind, date): US 2004759601 A 20040116

Patent Details

| Patent Number | Kind | Lan | Pgs | Draw | Filing Notes |
|----------------|------|-----|-----|------|--------------|
| US 20050160108 | A1 | EN | 21 | 9 | |

Alerting Abstract US A1

NOVELTY - A metadata schema derived from a hierarchical database is provided. The metadata schema has a representation of structure of hierarchical database, representation of structure of extensible markup language (XML) document, database field name and XML element name. The data is passed between XML document and hierarchical database using metadata schema.

DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

1. apparatus for passing data between XML document and hierarchical database; and
2. system for passing data between XML document and hierarchical database.

USE - Article of manufacture comprising storage medium storing program to pass data between extensible markup language (XML) document and hierarchical database.

ADVANTAGE - Allows for storage and retrieval of XML document in a decomposed, intact, or mixed format within hierarchical database, without modifying the database or database server.

DESCRIPTION OF DRAWINGS - The figure shows a flowchart explaining the method of passing data between extensible markup language (XML) document and hierarchical database.

Title Terms /Index Terms/Additional Words: ARTICLE; MANUFACTURE; COMPRISE; STORAGE; MEDIUM; PROGRAM; REPRESENT; STRUCTURE; HIERARCHY; DATABASE; EXTEND; LANGUAGE; DOCUMENT;

FIELD; NAME; ELEMENT

Class Codes

International Patent Classification

| IPC | Class Level | Scope | Position | Status | Version Date |
|-------------|-------------|-------|----------|--------|--------------|
| G06F-017/00 | | | Main | | "Version 7" |

US Classification, Issued: 707101000

File Segment: EPI;

DWPI Class: T01

Manual Codes (EPI/S-X): T01-J05B4P; T01-J11C

Original Publication Data by Authority

Original Abstracts:

An apparatus, system, and method are provided for passing data between an XML document and a **hierarchical database**. The apparatus, system, and method include a **hierarchical database**, a **metadata** schema, and a mapping module. The **hierarchical database** comprises a conventional **hierarchical database**, such as **IMS**. The metadata schema is derived from the **hierarchical database**. The **metadata** schema includes a first representation representative of the hierarchical structure of the hierarchical database, a second representation representative of the hierarchical structure of XML documents... .. more XML element names that map to the one or more database field names. The mapping module passes data between the XML document and the **hierarchical database** using the **metadata** schema.

...

Claims:

embodying one or more instructions executable by a processor to perform a method for passing data between an eXtensible Markup Language (XML) document and a **hierarchical database**, the method comprising:providing a **hierarchical database**;providing a **metadata** schema derived from the **hierarchical database**, the **metadata** schema comprising a first representation representative of the hierarchical structure of the **hierarchical database**, a second **representation** representative of the hierarchical structure of **XML** documents valid for passing into and out of the hierarchical database, a database field name, and an XML element name that maps to the database field name; andpassing data between an XML document and **the hierarchical database** using **the metadata** schema.

28/5K/3 (Item 3 from file: 349) [Links](#)

PCT FULLTEXT

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01153716

SEMANTIC KNOWLEDGE RETRIEVAL MANAGEMENT AND PRESENTATION

SYSTEME ET PROCEDE POUR UNE EXTRACTION, UNE GESTION, UNE CAPTURE, UN PARTAGE, UNE DECOUVERTE, UNE DISTRIBUTION ET UNE PRESENTATION DE CONNAISSANCES SEMANTIQUES

Patent Applicant/Patent Assignee:

- **NERVANA INC;** 10838 Main Street, Bellevue WA, 98004
US; US(Residence); US(Nationality)

Legal Representative:

- **BLACK Richard T(agent)**
Black Lowe & Graham PLLC, 816 Second Avenue, Seattle, WA 98104; US;

| | Country | Number | Kind | Date |
|-------------|---------|------------|-------|----------|
| Patent | WO | 200475466 | A2-A3 | 20040902 |
| Application | WO | 2004US4674 | | 20040217 |
| Priorities | US | 2003447736 | | 20030214 |

Designated States: (All protection types applied unless otherwise stated - for applications 2004+)

AE; AG; AL; AM; AT; AU; AZ; BA; BB; BG;
BR; BW; BY; BZ; CA; CH; CN; CO; CR; CU;
CZ; DE; DK; DM; DZ; EC; EE; EG; ES; FI;
GB; GD; GE; GH; GM; HR; HU; ID; IL; IN;
IS; JP; KE; KG; KP; KR; KZ; LC; LK; LR;
LS; LT; LU; LV; MA; MD; MG; MK; MN; MW;
MX; MZ; NA; NI; NO; NZ; OM; PG; PH; PL;
PT; RO; RU; SC; SD; SE; SG; SK; SL; SY;
TJ; TM; TN; TR; TT; TZ; UA; UG; US; UZ;
VC; VN; YU; ZA; ZM; ZW;

[EP] AT; BE; BG; CH; CY; CZ; DE; DK; EE; ES;
FI; FR; GB; GR; HU; IE; IT; LU; MC; NL;
PT; RO; SE; SI; SK; TR;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GQ; GW;
ML; MR; NE; SN; TD; TG;

[AP] BW; GH; GM; KE; LS; MW; MZ; SD; SL; SZ;
TZ; UG; ZM; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

Main International Patent Classes (Version 7):

| IPC | Level |
|-------------|-------|
| G06F-017/30 | Main |

Publication Language: English

Filing Language: English

Fulltext word count: 160617

English Abstract:

The present invention is directed to an integrated implementation framework and resulting medium for knowledge retrieval, management, delivery and presentation. The system includes a first server component that is responsible for adding and maintaining domain- specific semantic information (item 50) and a second server component (item 80) that hosts semantic and other knowledge for use by the first server component that work together to provide text and time- sensitive semantic information retrieval services to clients operating a presentation platform via a communication medium (item 10). Within the system, all objects or events given hierarchy are active Agents (item 90) semantically related to each other and representing queries (comprised of underlying action code) that return data objects for presentation to the client according to a predetermined and customizable theme or "Skin". This system provides various means for the client to customize and "blend" Agents and the underlying related queries to optimize the presentation of the resulting information (item 30).

French Abstract:

L'invention concerne un cadre d'implémentation intégré et un support résultant pour une extraction, une gestion, une capture, un partage, une découverte, une distribution et une présentation de connaissances. Ce système est responsable de la maintenance d'informations sémantiques.

| Type | Pub. Date | Kind | Text |
|---------------|-----------|------|--|
| Publication | 20040902 | A2 | Without international search report and to be republished upon receipt of that report. |
| Search Rpt | 20041028 | | Late publication of international search report |
| Republication | 20041028 | A3 | With international search report. |
| Republication | 20041028 | A3 | Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments. |

Detailed Description:

...to specify how the dialog box should interpret the keywords. The options allow the user to select whether the keywords should apply to the entire **hierarchy** of each entry in the taxonomy tree, or whether the keywords should apply to only the [end] **names** of the entries. For instance, the taxonomy entry "Anatomy

Cells

Cb-romaffin Cells" will be included in a hierarchy filter because the hierarchy includes the... ..the user to select whether the dialog box should check for all keywords, for any ke @ ord, or for the exact phrase.

YW

S. Categories **Tree View** - the **tree view displays** the taxonomy **hierarchy** and allows the user to select one or more

items to add to the Create Request Wizard or to open as a new Dossier (Guide...

28/5K/5 (Item 5 from file: 349) Links

PCT FULLTEXT

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00376923

STRUCTURED FOCUSED HYPERTEXT DATA STRUCTURE

STRUCTURE DE DONNEES HYPERTEXTE ARTICULEE SUR LA STRUCTURATION

Patent Applicant/Patent Assignee:

- **HYPERMED LTD;**
;;
- **OREN Avraham;**
;;
- **OLCHA Lev;**
;;
- **KOWALSKI Nahum;**
;;
- **MARGULYAN Rita;**
;;

| | Country | Number | Kind | Date |
|-------------|---------|----------|------|----------|
| Patent | WO | 9717666 | A2 | 19970515 |
| Application | WO | 96IL131 | | 19961023 |
| Priorities | US | 95551929 | | 19951023 |

Designated States: (All protection types applied unless otherwise stated - for applications 2004+)

Main International Patent Classes (Version 7):

| IPC | Level |
|-------------|-------|
| G06F-017/30 | Main |
| G06F-17:21 | |

Publication Language: English

Filing Language:

Fulltext word count: 263802

English Abstract:

A hypertexted data structure (3/16) stored on a computer readable memory device and organized in a hierarchy of at least two levels, the data structure comprising: a plurality of data units (18-20) positioned at different levels in the hierarchy each containing at least some textual information (23) and a plurality of hypertext links (1) each linking at least part of the textual information in a given source data unit to a target data unit; wherein at least one of the

hypertext links (1) is linked to at least one hypertext node (34) which contains information relating at least to both the given source data unit and the target data unit from which the relative positions in the hierarchy of the given source and target data units linked by the hypertext link may be determined.

French Abstract:

La presente invention concerne une structure de donnees en format hypertexte (3/16) stockees dans une memoire lisible par ordinateur et organisee selon une hierarchie comportant au moins deux niveaux. Cette structure de donnees est constituee, d'une part de plusieurs unites de donnees (18-20) se placant a differents niveaux de la hierarchie, chacune de ces unites de donnees contenant au moins quelques donnees textuelles (23), et d'autre part, d'un jeu de liens hypertexte (1), chacun de ces liens reliant au moins une partie de l'information textuelle d'une unite de donnees origine specifique a une unite de donnees cible. L'un au moins des liens hypertexte (1) est relie a l'un au moins des noeuds hypertexte (34) qui contient des donnees se rapportant au moins a la fois a l'unite de donnees origine specifique et a l'unite de donnees cible a partir de laquelle il est possible de determiner des positions relatives dans la hierarchie. Ces positions relatives sont celles des unites de donnees origine et cible reliees par le lien hypertexte.

Detailed Description:

STRUCTURED FOCUSED HYPERTEXT DATA STRUCTURE

BACKGROUND OF THE INVENTION

This invention relates generally to **data structures** for large **hierarchical multimedia databases**. More particularly, the **present** invention relates to a structured focused hypertext data structure in which hypertext nodes store identifying information about source and target documents or pages so that...

31/5,K/1 (Item 1 from file: 350) [Links](#)

Derwent WPIX

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0015256573 *Drawing available*

WPI Acc no: 2005-606660/200563

XRPX Acc No: N2005-497512

Illuminating mechanism for defining object layer

Patent Assignee: MICROSOFT CORP (MICT)

Inventor: BOGEDAN J; GRAMBILER R; RELIA R A

Patent Family (1 patents, 1 countries)

| Patent Number | Kind | Date | Application Number | Kind | Date | Update | Type |
|---------------|------|----------|--------------------|------|----------|--------|------|
| CN 1615476 | A | 20050511 | CN 2003801589 | A | 20030516 | 200563 | B |

Priority Applications (no., kind, date): CN 2003801589 A 20030516

Patent Details

| Patent Number | Kind | Lan | Pgs | Draw | Filing Notes |
|---------------|------|-----|-----|------|--------------|
| CN 1615476 | A | ZH | | 1 | |

CN A

NOVELTY - This invention relates to an illumination system for defining object **levels**. A method and **data structure** may define an object by using a statement in a marked file, which may be based **XML**. According it, an object can be written according mapping, which is of URL for locating define files that contain assemble or specific name spaces. Those **names** as marks are **mapped** onto marked files. The method also includes analysis of the marking language to establish an object level.

Title Terms /Index Terms/Additional Words: ILLUMINATE; MECHANISM ; DEFINE; OBJECT; LAYER

Class Codes

International Patent Classification

| IPC | Class Level | Scope | Position | Status | Version Date |
|-------------|-------------|-------|----------|--------|--------------|
| G06F-015/00 | | | Main | | "Version 7" |

File Segment: EPI;

DWPI Class: T01

Manual Codes (EPI/S-X): T01-N03B2

...**NOVELTY** - This invention relates to an illumination system for defining object **levels**. A method and **data structure** may define an object by using a statement in a marked file, which may be based **XML**. According it, an

object can be written according mapping, which is of URL for locating define files that contain assemble or specific name spaces. Those **names** as marks are **mapped** onto marked files. The method also includes analysis of the marking language to establish an object level.

31/5,K/2 (Item 2 from file: 350) [Links](#)

Derwent WPIX

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0015191484 *Drawing available*

WPI Acc no: 2005-541077/200555

XRPX Acc No: N2005-443189

Metadata schema definition device for business to consumer communication, associates database schema and document schema to define metadata schema that allows data to be transferred between document and hierarchical database

Patent Assignee: CHARLET K J (CHAR-I); HEMBRY D M F (HEMB-I); HOLTZ C M (HOLT-I);
WIEDENMANN C M (WIED-I)

Inventor: CHARLET K J; HEMBRY D M F; HOLTZ C M; WIEDENMANN C M

Patent Family (1 patents, 1 countries)

| Patent Number | Kind | Date | Application Number | Kind | Date | Update | Type |
|----------------|------|----------|--------------------|------|----------|--------|------|
| US 20050160110 | A1 | 20050721 | US 2004758890 | A | 20040116 | 200555 | B |

Priority Applications (no., kind, date): US 2004758890 A 20040116

Patent Details

| Patent Number | Kind | Lan | Pgs | Draw | Filing Notes |
|----------------|------|-----|-----|------|--------------|
| US 20050160110 | A1 | EN | 25 | 9 | |

Alerting Abstract US A1

NOVELTY - A document accessor accesses a document schema defining a hierarchical structure, content data syntax and semantics of extensible markup language (XML) documents and including an XML element name that maps to a database field name on a database schema. The database schema and document schema are associated to define a metadata schema that allows data to be transferred between document and a hierarchical database.

DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

1. method for defining metadata schema; and
2. article of manufacture comprising computer readable medium storing metadata schema definition program.

USE - For defining metadata schema for facilitating transfer of data between XML document and hierarchical database during business to business (B2B) and business to consumer (B2C) communications.

ADVANTAGE - The transfer of data between the XML document and hierarchical database, is facilitated efficiently. The metadata schema can be modified according to the changes in user defined database views.

DESCRIPTION OF DRAWINGS - The figure shows a conceptual diagram of the relational data structures for nodes in the relational database, hierarchical database and extensible markup language.

106 database node relation defining diagram

A-F database nodes

Title Terms /Index Terms/Additional Words: DEFINE; DEVICE; BUSINESS; CONSUME; COMMUNICATE; ASSOCIATE; DATABASE; DOCUMENT; ALLOW; DATA; TRANSFER; HIERARCHY

Class Codes

International Patent Classification

| IPC | Class Level | Scope | Position | Status | Version Date |
|-----------------------------|-------------|-------|-----------|--------|--------------|
| G06F-007/00 | | | Main | | "Version 7" |
| G06F-017/00; G06F-009/44 | | | Secondary | | "Version 7" |

US Classification, Issued: 707102000, 717122000

File Segment: EPI;

DWPI Class: T01

Manual Codes (EPI/S-X): T01-J05B4P; T01-J11C; T01-S03

Original Publication Data by Authority

...

Original Abstracts:

a document accessor, and an association module. The database accessor accesses a database schema indicative of database field names and a hierarchical structure for a **hierarchical database**. The document accessor accesses a document schema that defines the hierarchical structure, content data syntax, and semantics of valid, well-formed, **XML** documents that can be passed into and out of the **hierarchical database**. The document schema also includes at least one **XML** element **name** that **maps** to a corresponding database field **name** in the database schema. The association module associates the database schema and the document schema to provide a metadata schema that enables data to be passed between an **XML** document and the **hierarchical database**. >

Claims:

1. An apparatus for defining a metadata schema to facilitate passing data between an eXtensible Markup Language (XML) document and a hierarchical database, the apparatus comprising: a database accessor configured to access a database schema indicative of database field names and a hierarchical structure for a hierarchical database; a document accessor configured to access a document schema that defines the hierarchical structure, content data syntax, and semantics of valid, well-formed, XML documents that can be passed into and out of the hierarchical database, the document schema including an XML element name that maps to a database field name in the database schema; and an association module configured to associate the database schema and the document schema to provide a metadata schema that enables data to be passed between an XML document and the hierarchical database.

| Set | Items | Description |
|-----|---------|--|
| S1 | 1038159 | S DATABASE? ? OR DBMS OR RDBMS OR OODB OR DATA() (BASE? ? OR STRUCTURE? ?) OR REPOSITOR? |
| S2 | 6357144 | S HIERARCHY OR HIERARCHICAL OR HIERARCHIES OR LEVEL? ? OR TREE OR TREES OR BTREE? ? OR TIER? OR MULTILEVEL? |
| S3 | 43674 | S XML OR EXTENSIBLE() MARKUP() LANGUAGE |
| S4 | 2897031 | S MAP OR MAPS OR MAPPED OR MAPPING OR INDEX OR INDEXES OR INDICES OR CROSS() REFEREN? |
| S5 | 25078 | S S4 (5N) (NAME OR NAMES OR TITLE? ? OR LABEL? ?) |
| S6 | 575720 | S S2 (5N) (REPRESENT??? OR REPRESENTATION? ? OR DISPLAY??? OR SHOW? ? OR SHOWING OR PRESENT??? OR MODEL? ? OR MODELING OR DIAGRAM? ? OR VIEW??? OR GRAPH? ?) |
| S7 | 55932 | S S2 (3N) S1 OR IMS OR INFORMATION() MANAGEMENT() SYSTEM? ? |
| S8 | 0 | S S7 AND S3 AND S5 AND S6 |
| S9 | 1 | S S7 AND S3 AND S5 |
| S10 | 571 | S S4 (10N) S3 (10N) S1 |
| S11 | 16 | S S7 AND S3 AND S10 AND S6 |
| S12 | 7 | S S11 NOT PY>2004 |
| S13 | 5 | RD (unique items) |
| S14 | 5 | S S13 NOT S9 |

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INSPEC

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09684348

Title: An adaptive path index for XML data using the query workload

Author Jun-Ki Min; Chin-Wan Chung; Shim, K.

Author Affiliation: Dept. of Electr. Eng. & Comput. Sci., Korea Adv. Inst. of Sci. & Technol., Taejon, South Korea

Journal: Information Systems vol.30, no.6 p. 467-87

Publisher: Elsevier ,

Publication Date: Sept. 2005 **Country of Publication:** UK

CODEN: INSYD6 **ISSN:** 0306-4379

SICI: 0306-4379(200509)30:6L:467:APID;1-U

Material Identity Number: I275-2005-003

Document Number: S0306-4379(04)00061-4

Language: English **Document Type:** Journal Paper (JP)

Treatment: Practical (P)

Abstract: Due to its flexibility, XML is becoming the de facto standard for exchanging and querying documents over the Web. Many XML query languages such as XQuery and XPath use label paths to traverse the irregularly structured XML data. Without a structural summary and efficient indexes, query processing can be quite inefficient due to an exhaustive traversal on XML data. To overcome the inefficiency, several path indexes have been proposed in the research community. Traditional indexes generally record all label paths from the root element in XML data and are constructed with the use of data only. Such path indexes may result in performance degradation due to large sizes and exhaustive navigations for partial matching path queries which start with the self-or-descendent axis("/"). To improve the query performance, we propose an adaptive path index for XML data (termed APEX). APEX does not keep all paths starting from the root and utilizes frequently used paths on query workloads. APEX also has a nice property that it can be updated incrementally according to the changes of query workloads. Experimental results with synthetic and real-life data sets clearly confirm that APEX improves the query processing cost typically 2-69 times compared with the traditional indexes, with the performance gap increasing with the irregularity of XML data. [All rights reserved Elsevier]. (25 Refs)

Subfile: C

Descriptors: data mining; database indexing; query languages; query processing; string matching; tree data structures; XML

Identifiers: APEX adaptive path index; query workload; Web document querying; XQuery XML query language; XPath XML query language; label paths; irregularly structured XML data; query processing; partial matching path queries; query performance improvement; semistructured data; data mining

Class Codes: C6160 (Database management systems (DBMS)); C6130D (Document processing techniques); C7210N (Information networks); C6130M (Multimedia); C6170K (Knowledge engineering techniques); C6120 (File organisation)

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09160144 **INSPEC Abstract Number:** C2004-12-6130D-016

Title: XIQS: an XML indexing and query system

Author Venkatesh, S.; Gongzhu Hu

Author Affiliation: Dept. of Comput. Sci., Central Michigan Univ., Mount Pleasant, MI, USA

Conference Title: 18th International Conference on Computers and Their Applications (CATA-2003) p. 180-3

Editor(s): Debnath, N.

Publisher: Int. Soc. for Comput. and Their Applications , Cary, NC, USA

Publication Date: 2003 **Country of Publication:** USA viii+489 pp.

Material Identity Number: XX-2004-00982

Conference Title: 18th International Conference on Computers and Their Applications (CATA-2003)

Conference Sponsor: ISCA

Conference Date: 26-28 March 2003 **Conference Location:** Honolulu, HI, USA

Language: English **Document Type:** Conference Paper (PA)

Treatment: Practical (P)

Abstract: Retrieval from XML data sets is an actively researched field that presents some different problems from retrieval of relational **databases**. The challenges stem from the characteristics of the tree structures of XML data. We present a system, XIQS, for XML query processing with an indexing strategy. Internal **data structures** are built based on the data type definitions (DTD) of the XML documents. The internal **data structures** are used to store the data extracted from XML documents as well as storing **indexes** to the data items. The **indexes** keep track of the elements' paths information. The system parses user's query and uses the indexes to retrieve the data items that satisfy the conditions specified in the query. (9 Refs)

Subfile: C

Descriptors: database indexing; query processing; relational databases; **tree data structures**; XML

Identifiers: XML indexing system; XML query system; XML data sets; relational databases; **tree data structures**; XIQS; query processing; data type definitions; XML documents

Class Codes: C6130D (Document processing techniques); C6160D (Relational databases); C6120 (File organisation)

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08810101 **INSPEC Abstract Number:** C2004-01-6140D-010

Title: A proposal for an XML data definition and manipulation language

Author Obasanjo, D.; Navathe, S.B.

Conference Title: Efficiency and Effectiveness of XML Tools and Techniques and Data Integration over the Web. VLDB 2002 Workshop EEXTT and CAiSE 2002 Workshop DIWeb. Revised (Lecture Notes in Computer Science Vol.2590) p. 1-21

Editor(s): Bressan, S.; Chaudhri, A.B.; Lee, M.L.; Yu, J.X.; Lacroix, Z.

Publisher: Springer-Verlag, Berlin, Germany

Publication Date: 2003 **Country of Publication:** Germany x+258 pp.

ISBN: 3 540 00736 9 **Material Identity Number:** XX-2003-00892

Conference Title: Efficiency and Effectiveness of XML Tools and Techniques and Data Integration over the Web. VLDB 2002 Workshop EEXTT and CAiSE 2002 Workshop DIWeb. Revised Papers

Conference Date: Dec. 2002 **Conference Location:** London, UK

Language: English **Document Type:** Conference Paper (PA)

Treatment: Practical (P)

Abstract: XML has become a popular data interchange and storage format, which in recent times has precipitated the rise of XML-enabled relational **databases** as well as native **XML databases**. We outline a data definition and manipulation language for **XML repositories** that enables users to perform data management tasks such as creation and deletion of **indices**, collections and documents. The language proposed also provides the ability to perform queries, transformations and updates on the documents in the **XML repository** either singly or across an entire collection. A syntax for the language is presented as extensions to the W3C's XML query language (XQuery) and also as a new language with syntax borrowed heavily from SQL for the relational model and DL/1 of IBM's **IMS** system for the **hierarchical model**. A prototype implementation of the language has been partially completed. (23 Refs)

Subfile: C

Descriptors: computational linguistics; database indexing; hypermedia markup languages; query languages; query processing; relational databases

Identifiers: XML data definition language; XML data manipulation language; data interchange format; data storage format; XML-enabled relational database; XML repository; data management task; document querying; document update; document transformation; language syntax; W3C XML query language; XQuery; SQL; relational model; DL/1; IBM IMS system; **hierarchical model**; language prototype implementation

Class Codes: C6140D (High level languages); C6130M (Multimedia); C4210L (Formal languages and computational linguistics); C6160D (Relational databases); C6130D (Document processing techniques)

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INSPEC

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08671073 **INSPEC Abstract Number:** C2003-08-6130D-011

Title: Extraction of XML from relational databases

Author Lewis, B.

Author Affiliation: Dept. of Comput. Sci. & Comput. Eng., La Trobe Univ., Australia

Conference Title: XML-Based Data Management and Multimedia Engineering - EDBT 2002 Workshops. EDBT 2002 Workshops XMLDM, MDDE, and YRWS. Revised Papers (Lecture Notes in Computer Science Vol.2490) p. 228-41

Editor(s): Chaudhri, A.B.; Unland, R.; Djeraba, C.; Lindner, W.

Publisher: Springer-Verlag, Berlin, Germany

Publication Date: 2002 **Country of Publication:** Germany xii+649 pp.

ISBN: 3 540 00130 1 **Material Identity Number:** XX-2002-03877

Conference Title: XML-Based Data Management and Multimedia Engineering - EDBT 2002 Workshops. EDBT 2002 Workshops XMLDM, MDDE, and YRWS. Revised Papers

Conference Date: 24-28 March 2002 **Conference Location:** Prague, Czech Republic

Language: English **Document Type:** Conference Paper (PA)

Treatment: Practical (P)

Abstract: Relational databases are a mature technology that dominates the implementation of database systems. XML is a new technology that is attracting a great deal of interest and there are indications that it may dominate some areas of information system development, particularly amongst distributed systems. The role of XML within information systems and legacy information systems is still to be precisely determined however. This paper describes a generalised **mapping** between relational **databases** and XML documents that is based on the **tree** structure of the Document Object **Model** (DOM). It also describes XR2 (XML to Relational Translation). (7 Refs)

Subfile: C

Descriptors: document handling; hypermedia markup languages; object-oriented databases; relational databases; **tree data structures**

Identifiers: relational databases; information system development; XML documents; tree structure; Document Object Model; XR2; distributed systems

Class Codes: C6130D (Document processing techniques); C6140D (High level languages); C6160D (Relational databases); C6160J (Object-oriented databases); C6120 (File organisation)

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Computer and Information Systems Abstracts

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0000566629 IP Accession No: 200611-30-144022

Complete answer aggregates for treelike databases

Meuss, Holger; Schulz, Klaus U

ACM Transactions on Information Systems , v 19 , n 2 , p 161-215 , Apr. 2001

Publication Date: 2001

Publisher: Association for Computing Machinery, Inc. , One Astor Plaza, 1515 Broadway , New York , NY , 10036-5701

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File Segment: Computer & Information Systems Abstracts

Abstract:

The use of markup languages like SGML, HTML or XML for encoding the structure of documents or linguistic data has led to many databases where entries are adequately described as trees. In this context querying formalisms are interesting that offer the possibility to refer both to textual content and logical structure. We consider models where the structure specified in a query is not only used as a filter, but also for selecting and presenting different parts of the data. If answers are formalized as mapping from query nodes to the database, a simple enumeration of all mappings in the answer set will often suffer from the effect that many answers have common subparts. From a theoretical point of view this may lead to an exponential time complexity of the computation and presentation of all answers. Concentration on the language of so called tree queries - a variant and extension of Kilpelainen's Tree Matching formalism - we introduce the notion of a "complete answer aggregate" for a given query. This new data structure offers a compact view of the set of all answer and supports active exploration of the answer space. Since complete answer aggregates use a powerful structure-sharing mechanism their maximal size is of order $\sigma(d-h-q)$ where d and q respectively denote the size of the database and the query, and h is the maximal depth of a path of the database. An algorithm is given that computes a complete answer aggregate for a given tree query in time $\sigma(d - \log(d) - h)$. For the sublanguage of so-called rigid tree queries, as well as for so-called "nonrecursive" databases, an improved bound of $\sigma(d - \log(d) - q)$ is obtained. The algorithm is based on a specific index structure that supports practical efficiency.

Descriptors: Databases; Query processing; Trees; Aggregates; Mathematical models; Algorithms; Query languages; Formalism; Mapping; Extensible Markup Language; Encoding^{Hyper}; HyperText Markup Language; XML; Matching; Document markup languages; Information systems; Linguistics; HTML; Supports; Computation; Complexity; Enumeration; Exploration
Subj Catg: 30, Information Systems (General)

14/5/5 (Item 2 from file: 56) [Links](#)

Computer and Information Systems Abstracts

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0000553442 IP Accession No: 200610-31-123949

INDEXING XML DATA WITH A SCHEMA GRAPH

Luoma, Olli Department of Information Technology University of Turku Lemmink"aisenkatu 14 A, FIN-20520, Turku Finland

Publication Date: 2004

Publisher: Acta Press Inc. , #80, 4500-16 Avenue N.W. , Calgary, AB , T3B 0M6

Country Of Publication: Canada

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Publisher Email: comments@actapress.com

Conference:

IASTED International Conference on Databases and Applications: as part of the 22th IASTED International Multi-Conference on Applied Informatics , Innsbruck , Austria , 17-19 Feb. 2004

Document Type: Conference Paper

Record Type: Abstract

Language: English

ISBN: 0889863830

File Segment: Computer & Information Systems Abstracts

Abstract:

I introduce a novel concept of schema graph, which can be used to **index XML** data. I also describe XeeK, a prototype system based on a relational **database**, which utilizes my innovation. As in many other methods, the basic idea of XeeK is to decompose the documents into element, attribute, and text nodes, which then are stored into element, attribute, and text relations, respectively. The database schema of XeeK is fixed, so it is possible to store all kinds of **XML** documents without any prior information about document DTDs. Because XeeK summarizes document structures using a schema **graph** rather than a schema **tree**, it is very efficient when querying documents based on their structure. The results of performance studies demonstrate the effectiveness of my method.

Descriptors: Graphs; **XML**; **Extensible Markup Language**; **Texts^ Database**; Databases; Prototypes; Relational **data bases** ; Stores; **Trees**; Indexing; Conferences; Decomposition

Subj Catg: 31, Database Design and Management